**Introduction to Polynomials** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Fill in the blank.** “poly” = *many* “mial” = *term* “polynomial” = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**In problems 2 – 5, use the list of features of a polynomial to determine if the expression is or is not a polynomial.**

Features of a polynomial:

* The exponent is not a fraction or decimal
* The exponent is not negative
* The variable cannot be in the denominator of a fraction

2. *Circle the correct statement*: Yes, it is a polynomial. No, it is not a polynomial.

3. *Circle the correct statement*: Yes, it is a polynomial. No, it is not a polynomial.

4. *Circle the correct statement*: Yes, it is a polynomial. No, it is not a polynomial.

5. *Circle the correct statement*: Yes, it is a polynomial. No, it is not a polynomial.

**Use the chart below for problems 6 – 10.** *Note: Terms are separated by + or – signs.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Number of terms** | **Name** | **Example #1** | **Example #2** | **Example #3** |
| 1 | Monomial |  |  |  |
| 2 | Binomial |  |  |  |
| 3 | Trinomial |  |  |  |
| 4 or more | polynomial |  |  |  |

Label the polynomial as a *monomial*, *binomial*, *trinomial*, or *polynomial*.

6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. Use the examples below to come up with a definition of the *degree*of a polynomial.

Example #1: The *degree* of is **4**. Example #2: The *degree* of is **3**.

Example #3: The *degree* of is **1**. Example #4: The *degree* of is **2**.

Example #5: The *degree* of is **0**. Example #6: The *degree* of is **5**.

The **degree** of a polynomial is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Use the chart below for problems 11 – 14.**

|  |  |
| --- | --- |
| **Polynomial not in standard form** | **Polynomial in standard form** |
|  |  |
|  |  |
|  |  |
|  |  |

Rewrite the polynomial so it’s in standard form.

11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***\*\*\*\*When you’re finished, call me over so I can check your answers.\*\*\*\****

**Notes: Combine like terms.**

Example #1: Example #2:

Example #3: Example #4:

**Adding Polynomials** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Review:** For each problem, do the following.

* If possible, combine like terms.
* Write the resulting polynomial in standard form.
* State the degree of the polynomial.
* Name the polynomial by the number of its terms (e.g., monomial).

1.

Standard form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Degree: \_\_\_\_\_ Name (by terms): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2.

Standard form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Degree: \_\_\_\_\_ Name (by terms): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.

Standard form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Degree: \_\_\_\_\_ Name (by terms): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4.

Standard form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Degree: \_\_\_\_\_ Name (by terms): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5.

Standard form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Degree: \_\_\_\_\_ Name (by terms): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**New: Find the sum of the polynomials.**

Example #1:

Example #2:

Example #3:

**Assignment:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_